

Water features on sites monitored

- 9 timber sales had lakes
- 39 timber sales had streams
- 29 timber sales had wetlands



Some sites had more than one water feature, i.e. a stream and a wetland.

BMP Application


	Federal	Industrial
BMP applied correctly	20.6%	24.0%
BMP applied but incorrectly	0.3%	0.4%
BMP not applied	0.7%	1.2%
Insufficient information to rate	1.1%	1.2%
BMP not applicable to the site	77.0%	73.2%

BMP Effectiveness

	Federal	Industrial
No adverse impact	21.1%	24.6%
Minor short-term impact	0.2%	0.4%
Minor long-term impact	0.4%	0.6%
Major short-term impact	0.0%	0.0%
Major long-term impact	0.0%	0.0%
Effectiveness rating not applicable	78.0%	74.3%

What's to come?

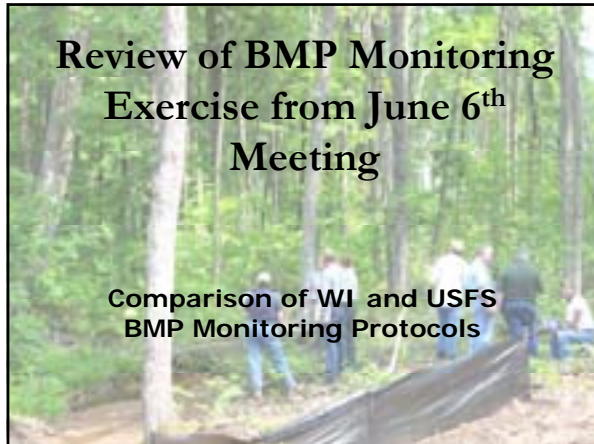
- Statistical analysis of data
- Write report
- Share results with landowners who had timber sales monitored



- To be completed early spring 2007

Review of BMP Monitoring Exercise from June 6th Meeting

Comparison of WI and USFS
BMP Monitoring Protocols



What did we do?

- ▣ Completed RMZ and Stream Crossing portions of the two protocols
- ▣ 4 teams, each team got experience with both portions of each protocol



Why did we do it?

- ▣ Committee members get an idea of what the USFS Regional Monitoring Protocol is like
- ▣ Compare the two methods to determine if we may want to use the USFS protocol for future BMP monitoring efforts



General Results – RMZ

- ▣ WI protocol
 - Main “issues” with harvest:
 - ▣ Location of road and use of equipment near stream
 - ▣ Harvesting within RMZ
- ▣ USFS regional protocol
 - Main “issues” with harvest:
 - ▣ No major issues identified

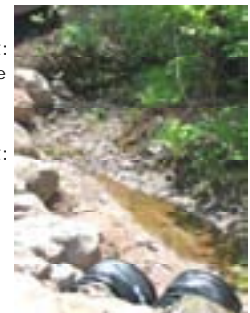


Differences between protocols

- ▣ WI protocol identifies that road is too close to stream and equipment was used in “no equipment zone”
- ▣ Because no soil is seen moving in the RMZ, the USFS protocol doesn’t identify the road/equipment as a problem

General Results – Stream Crossing

- ▣ WI protocol
 - Main “issues” with harvest:
 - ▣ Installation and maintenance of culvert
- ▣ USFS regional protocol
 - Main “issues” with harvest:
 - ▣ Soil moving in RMZ (but not reaching stream)
 - ▣ Culvert width is less than bankfull width
 - ▣ Evidence of scouring/sedimentation at crossing



Differences between protocols

- ❑ Both identify that there are problems with the installation and maintenance of the culvert.
- ❑ WI protocol identifies that BMPs weren't followed, but doesn't identify specific problems that have resulted because BMPs weren't followed
- ❑ USFS protocol identifies what issues are occurring because of the culvert problem (soil moving into stream)

WI Protocol

Stream Crossing BMPs that generated different evaluations

- ❑ Disruption of fish/aquatic life movement
- ❑ Place fill over culvert higher than road approach
- ❑ Use riprap around culvert inlet (fabric under riprap if permanent culvert)
- ❑ Keep culverts clear and free of debris

USFS Regional Protocol

Stream Crossing questions that generated different responses

- ❑ Distance soil moved
- ❑ Evidence that soil moved
- ❑ Road bearing capacity improvements
- ❑ Soil movement in Approach A Inside Buffer
- ❑ Evidence that sediment reached water body
- ❑ Preponderant type of sediment

USFS Regional Protocol

Stream Crossing questions that generated different responses (cont)

- ❑ Sediment continuing next storm
- ❑ Distance soil moved as percent of buffer width
- ❑ Age of crossing structure

Is this a problem?

- ❑ Both protocols tend to have a certain amount of inconsistency with how different teams rate/answer different items

Is this a problem?

- ❑ This will always be an issue, but because USFS protocol generates specific and quantitative data, this inconsistency between teams could generate very different results for one timber sale
 - Same is true for WI protocol but less specific results are being generated
 - Overall may mean that results will always need to be taken as subjective and as a best guess of on the ground conditions

What do you think?



2007 BMP Monitoring Options

Kristin Shy
Carmen Wagner

2006 BMP Monitoring Exercise

- 22 sales were monitored with both the WI BMP monitoring protocol & the USDA FS Regional monitoring protocol
- Goal was to compare the methods and results of each method

Future Monitoring Options

- Option 1: Continue using existing Wisconsin BMP monitoring protocol
- Option 2: Use USDA FS Regional BMP monitoring protocol
- Option 3: Use a hybrid of Wisconsin BMP & USDA FS BMP monitoring protocol

Option 1: WI Method

- Used since 1995
- 6-member teams
- Qualitative data
- Was BMP applied?
- What was the effect of BMP application?

Option 1: Advantages

- Data since 1995
- Know how to use method
- Materials developed for monitoring
- Can monitor in 2007

Option 1: Disadvantages

- Subjective
- Data entry
- Lack of consistent report template

Option 2: FS Regional Method

- Developed by ME FS and USDA FS
- 2-member teams or larger
- Collect data on hand-held recorder
- Uses a tree structure for questions
- Quantitative and qualitative data
- Were BMP principles satisfied?

Option 2: Advantages

- Other state in NA are using
- Less subjective
- Easy of data entry
- Automated report generation
- Cost savings

Option 2: Disadvantages

- Investment in equipment
- Not an “approved” software
- Programming glitches
- Comparing 1995 – 2006 data
- May not monitor in 2007 or may have smaller sampling size

Option 3: WI / FS Hybrid

- Combine best of both worlds
- 2-member teams or larger
- Collect data on hand-held recorder
- Use a tree structure for questions
- Quantitative and qualitative data
- Focus on specific BMPs & principles

Option 3: Advantages

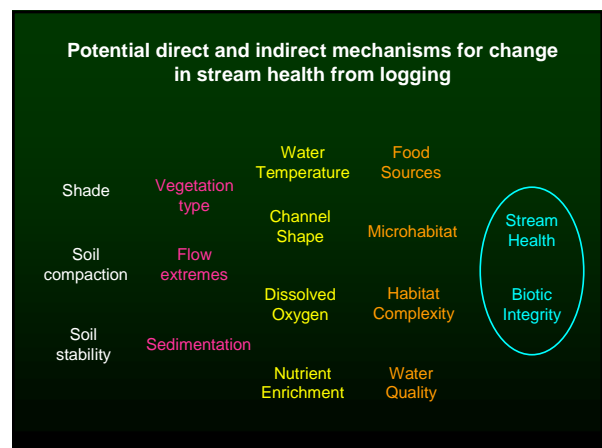
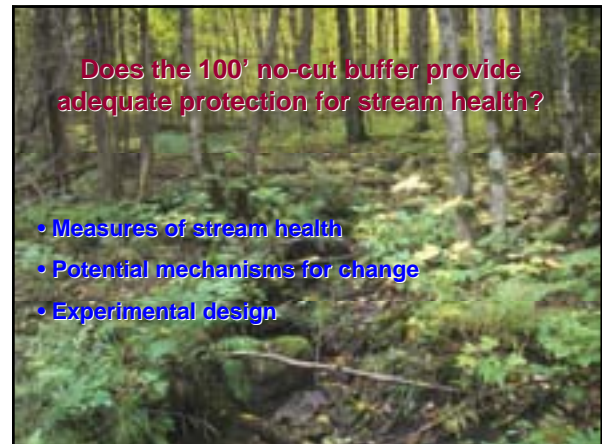
- Fit to Wisconsin's needs
- Compare to historic data
- Allow consolidation with other NA states
- Introduce less subjective questions
- Data entry
- Automated report templates
- Cost savings

Option 3: Disadvantages

- Investment to develop program
- Investment in equipment
- May not monitor in 2007 or may have smaller sampling size

What is Next?

- Does the BMP Advisory Committee have a preferred option that we should investigate more?



Macroinvertebrate Index of Biotic Integrity (IBI)

Weigel, B. 2003. Development of stream macroinvertebrate models that predict watershed and local stressors in Wisconsin. *Journal of the North American Benthological Society* 22: 123-142.

Macroinvertebrate multi-metric IBIs use several assemblage attributes to indicate stress on the biota:

- Species richness
- % Nutrient tolerant
- % Sediment tolerant
- % Mayflies, Stoneflies, & Caddis flies
- % Feeding guilds



Fish IBI

Lyons, J. 1992. Using the index of biotic integrity (IBI) to measure environmental quality in warmwater streams of Wisconsin. U.S. Forest Service, General Technical Report NC-149.

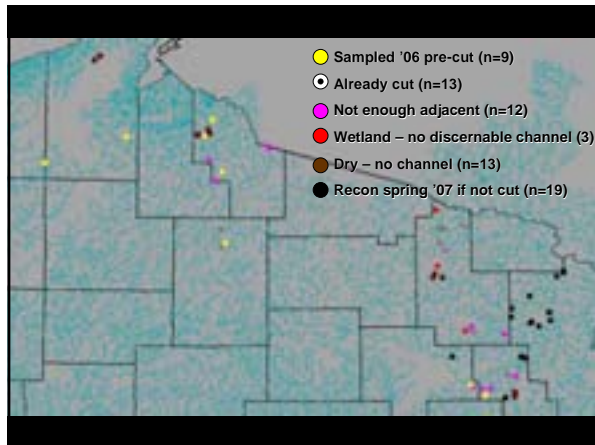
Lyons, J., L. Wang, and T. Simonson. 1996. Development and validation of an index of biotic integrity for coldwater streams in Wisconsin. *North American Journal of Fisheries Management* 16: 241-256.

Fish multi-metric IBI assemblage attributes:

- Catch per unit effort
- Intolerant species
- Native species
- % Deformities
- % Lithophilic spawners
- % Insectivores









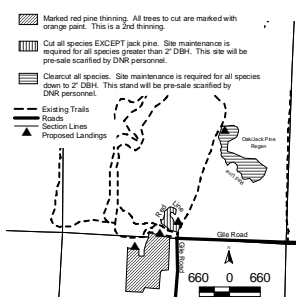


Sale Identification Process

- 381 sales open on July 1, 2006
- 278 of those were sold
- Random numbered the 278 sales
- Contacted first 100 sales to see if any harvesting had occurred yet
- 41 sales had started harvesting or completed harvesting
- 30 first sales of the 41 sales were visited

Background Information

- Map
- Harvesting dates
- Sale acreage
- Harvest equipment



Equipment

- Level
- Soil Pentrometer
- Folding Ruler
- Small Shovel
- GPS
- Camera



- Forestry Suppliers, Inc.

Roads, Landings, & Primary Skid Trails

- Area
- New vs. Existing
- Removed from production?
- Active erosion?
- Altered drainage?



Transects

- Coordinates
- Slope
- % Bare soil
- Soil texture
- Soil compaction every 100 feet



Ruts & Gullies

- Roads, landings, primary skid trails & transects
- Total length
- Length deeper than 6 inches
- Length deeper than 10 inches
- Total depth
- Location and orientation
- Cause and age



Not Recorded if...

- Depth was less than 6 inches in entirety
- Length was less than 5 feet in entirety
- Did not bisect a transect in harvest area



Timber Sale Property Types

- 20 sales on State Forests
- 4 sales on Wildlife Areas
- 2 sales on Scenic Waters Areas
- 1 sale on a Fishery Area
- 1 sale on a State Park
- 1 sale on a Natural Resources Area
- 1 sale on a Wild River

State Forests – 20 Sales

- American Legion – 2



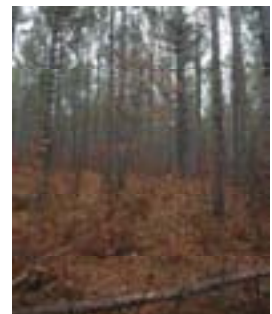
State Forests – 20 Sales

- American Legion – 2
- Black River – 5



State Forests – 20 Sales

- American Legion – 2
- Black River – 5
- Brule River – 1



State Forests – 20 Sales

- American Legion – 2
- Black River – 5
- Brule River – 1
- Flambeau River – 4



State Forests – 20 Sales

- American Legion – 2
- Black River – 5
- Brule River – 1
- Flambeau River – 4
- Gov. Knowles – 3



State Forests – 20 Sales

- American Legion – 2
- Black River – 5
- Brule River – 1
- Flambeau River – 4
- Gov. Knowles – 3
- N. Highland – 5



Wildlife Areas - 4

- Beaver Brook
- Chief River
- Fish Lake
- Wood County



Other Sales - 6

- Chippewa Flowage Scenic Waters Area
- Turtle Flambeau Scenic Waters Area
- Beverly Lake Fishery Area
- Gov. Thompson State Park
- Menominee Natural Resource Area
- Pine-Popple Wild Rivers



Harvesting Status

- 10 sales in progress
 - Averaged over 50% of sale completed
- 20 sales completed
 - Averaged 5 months since sale completed



Sale Size

- Averaged 90 acres
- Largest = 282 acres
- Smallest = 22 acres



No Ruts or Gullies Observed

- Did not observe ruts or gullies on 9 sales
- 7 were on sandy soils
- 2 were on heavier soils



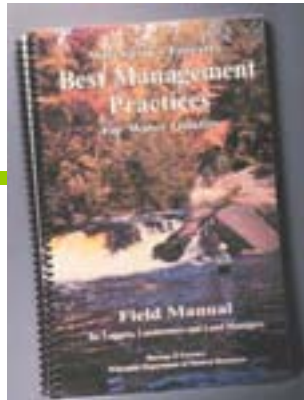
Observed Ruts or Gullies

- Observed ruts or gullies on 21 sales
- 2 sales had excessive rutting
 - 1 was caused by harvesting equipment
 - 1 was a mix of harvesting equipment & off-road vehicles
- 19 sales has ruts/gullies, but not excessive
 - Caused primarily by harvesting equipment

The BMP Field Manual

Editing & Updating Options

BMP Advisory Committee Meeting
December 2006



There are only 400 left at our warehouse!

It's the perfect time to do some updating

Past Changes to the Manual

- ❑ Published in March 1995
- ❑ Reprinted in August, 1997 and May, 2003
- ❑ Changes made were minor grammatical edits
- ❑ Most changes made in appendix A, "Sources for Help", and Appendix B, "Regulations"
- ❑ BMPs themselves have not changed

Current Goals

- ❑ Make the manual more widely used and more user-friendly
- ❑ Keep the BMPs as is (per our June Advisory Committee meeting discussion)
- ❑ Update the BMPs after BMP monitoring protocol effort is completed (per our June Advisory Committee meeting discussion)
- ❑ Begin work on a Forestry BMP Guidebook (modules that compliment BMP training)

Suggestions for updates

- ❑ Correct spelling and grammatical errors
- ❑ Improve manual design and illustrations (add color!)
- ❑ Update statutes/regulations
- ❑ Update permit information
- ❑ Add background information to explain BMP issues better
- ❑ Clarify definitions
- ❑ Add "Practices to Avoid"